Emerson®

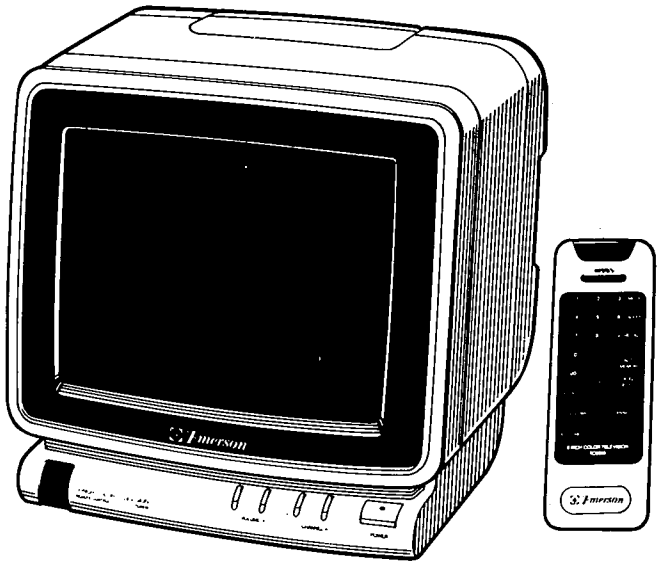
SERVICE MANUAL

MODEL TC0916

CAUTION: Before servicing the chassis, read the "IMPORTANT SERVICE SAFETY INFORMATION" section on page 2 of this manual.

AKB AUTOMATIC KINE BIAS

9" 181 CHANNEL CABLE COMPATIBLE REMOTE CONTROL COLOR TELEVISION



SPECIFICATIONS

AC POWER INPUT.....120V, 60Hz
AC POWER CONSUMPTION.....60 Watts @ 120V
PICTURE SIZE.....9" (MEASURED DIAGONALLY)
FOCUS LENS.....Bipotential
AUDIO POWER OUTPUT RATING...0.7 Watts @ 10% Dist.
FREQUENCY RESPONSE.....250Hz–6KHz± 3dB
SPEAKER SIZE.....3", 10g Magnet
VOICE COIL IMPEDANCE.....16 ohms at 400Hz–1KHz
ANTENNA INPUT IMPEDANCE...75 ohm Coaxial Input (VHF/UHF)
TELEVISION RF FREQUENCY RANGE:
- VHF-L.....54MHz to 88MHz
- VHF-H.....174MHz to 216MHz
- UHF.....470MHz to 806MHz

MIDBAND (5A).....70MHz to 76MHz
(A5 thru A1, A thru I).....90MHz to 174Mhz
SUPERBAND (J thru W).....216MHz to 300MHz
HYPERBAND (AA thru FFF).....300MHz to 474Mhz
ULTRA BAND.....474MHz to 648MHz
INTERMEDIATE FREQUENCY
- Picture IF Carrier Frequency.....45.75MHz
- Sound IF Carrier Frequency.....41.25MHz
- Color Sub-Carrier Frequency.....42.17MHz

WEIGHT.....6.5KGS (14.3 lbs)
DIMENSIONS.....375mm(W) x 330mm(H) x 320mm(D)
14–3/4"(W) x 13"(H) x 12 2/3"(D)

CONTENTS

SERVICE PUBLICATION # 78-92

Note: All the specifications and features are subject to change without notice.

EMERSON RADIO CORP.
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IMPORTANT SERVICE SAFETY INFORMATION

Operating the receiver outside of its cabinet or with its back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis escutcheon, picture tube dag and tuner when operating chassis.

These receivers have a "polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line . This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of this receiver is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on these types of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain HV failures can increase X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is 23.3kV± 1.0kV at zero beam current with a line voltage of 120V AC. Higher voltage may also increase the possibility of failure in the HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receiver that could cause a rise in high voltage, or operating supply voltages. No changes should be made to the original design of the receiver.

Components shown in the shaded areas on the schematic diagram and/or identified by ⚠ in the replacement parts list should be replaced only with exact factory recommended replacement parts. The use of unauthorized substitute parts may create shock, fire, X-ray radiation, or other hazards.

To determine the presence of high voltage, use an accurate high impedance HV meter connected between the second anode lead and the CRT dag grounding device. When servicing the High Voltage System remove static charges from it by connecting a 10K Ohm resistor in series with an insulated wire (such as test probe) between the picture tube dag and 2nd anode lead (Have AC line cord disconnected from AC supply).

The picture tube used in this receiver employs integral implosion protection. Replace with a tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely. Keep others without shatter-proof goggles away.

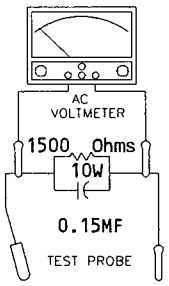
Before returning the receiver to the user, perform the following safety checks :

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V, AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. Any reading of 0.35mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 Ohm, 10 watt resistor paralleled by a 0.15MF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 Ohms per volt, or higher, sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates potential shock hazard which must be corrected before returning the receiver to the owner.



ALIGNMENT INSTRUCTIONS

PLEASE READ BEFORE ATTEMPTING SERVICE

1. Use an isolation transformer when performing any service on this chassis.
2. Before removing the anode cap, discharge electricity because it contains high voltage.
3. Unplug power cord before attempting any repairs.
4. Do not short any portion of the circuit while the power is on.
5. For safety reasons, replace components only with identical replacement parts (SEE PARTS LIST).
6. Before alignment, the TV must be warmed up for at least 30 minutes. Erase magnetism thoroughly from CRT with an external degaussing coil.
7. When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
8. Inferior silicon grease can damage IC's and transistors. When replacing IC's and transistors, use only specified silicon grease (YG6260M). Remove all old silicon when applying new silicon.

TEST EQUIPMENT

1. VIF Sweep Generator
2. SIF Sweep Generator
3. Color Bar/Dot/Cross Hatch
4. DC Power Supply (24V)
5. Oscilloscope
6. Vacuum Tube Voltmeter
7. Volt Ohmmeter
8. High Voltage Meter
9. Ampere Meter (0.5 Class, DC 3mA Max.)
10. Demagnetizing Coil

NOTE : Unsolder the solder link (A) on the solder side of main board before performing alignment steps.
(See bottom view of main PCB.)

IF COIL ALIGNMENT

PREPARATION STEPS (Refer to Fig.1)

1. Connect OUTPUT leads of VIF Sweep Generator (PR2) to tuner test point TP and tuner case.
2. Connect leads of FROM DET (PR1) to TP305 and GND.
3. Supply DC +14V to ⊕ lead of D412.
4. Supply RF AGC bias voltage to TP307.

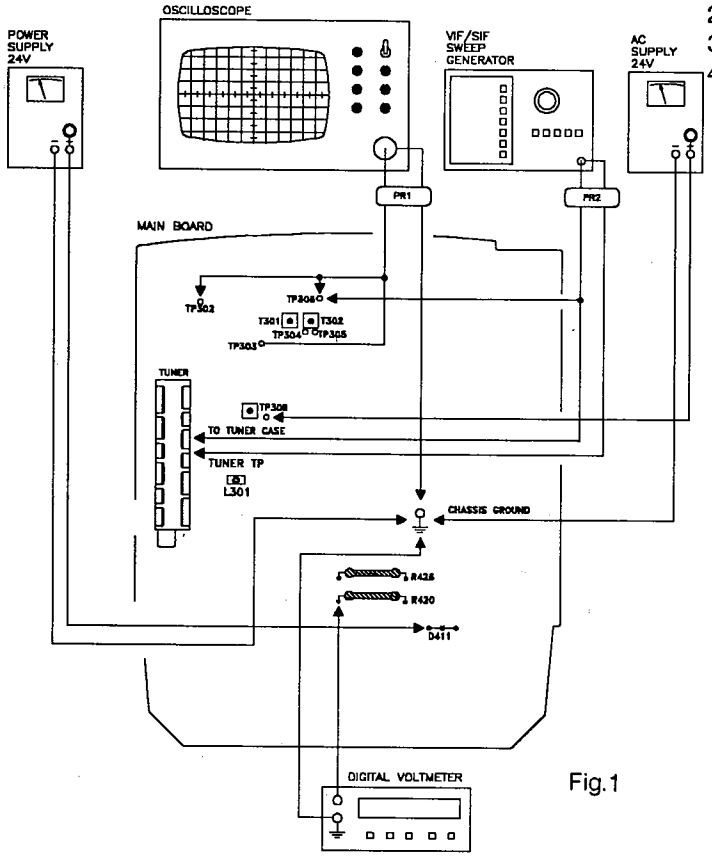


Fig.1

ALIGNMENT STEPS (Refer to Fig.2)

1. Adjust AGC bias voltage for maximum amplitude of waveform.
2. Adjust the level of Sweep Generator to achieve 1Vp-p output.
3. Adjust T302 to obtain maximum amplitude of response at PC. (45.75 MHz)

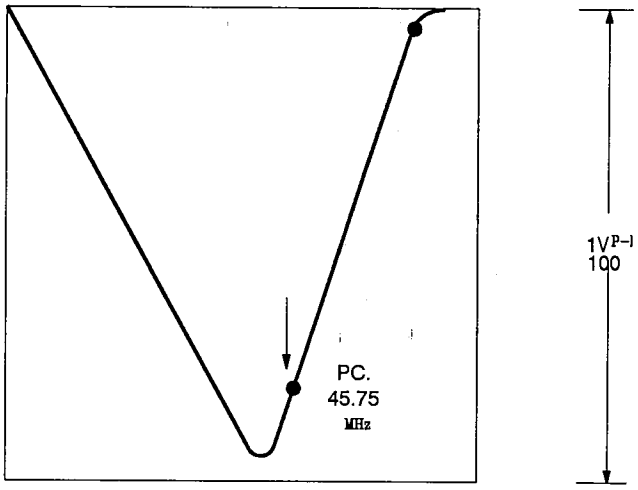


Fig.2

VIF ALIGNMENT

PREPARATION STEPS (Refer to Fig.1)

1. Connect output leads of VIF Sweep Generator (PR2) between tuner test point TP and tuner case.
2. Connect resistor (100 Ohm) between TP304 and TP305.
3. Connect lead of FROM DET (PR1) between TP306 and GND.
4. Supply DC +12.5V to ⊕ lead of D411.
5. Supply RF AGC bias voltage to TP308.

ALIGNMENT STEPS

1. Adjust AGC bias voltage for maximum amplitude of waveform.
2. Adjust the level of Sweep Generator to achieve 1Vp-p output.
3. Increase the output level of Sweep Generator to 60 dB.
4. Adjust core of L301 to obtain the waveform as in **Fig.4**.
5. Decrease the output level of Sweep Generator to 30 dB.
6. Adjust AGC bias voltage to achieve 1Vp-p output (on Oscilloscope).
7. Adjust tuner converter coil to obtain the waveform as in **Fig.3**.

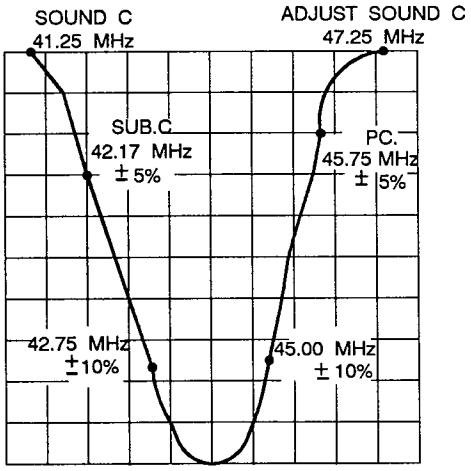


Fig.3

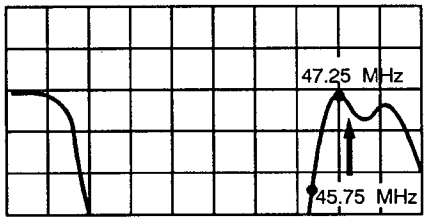


Fig.4

AFC ALIGNMENT

PREPARATION STEPS (Refer to Fig.1)

1. Remove the damping resistor (100 Ohm) between TP304 and TP305.
2. Connect output lead of Sweep Generator (PR2) to tuner point TP & tuner case.
3. Connect lead of FROM DET (PR1) between TP306 and GND.
4. Supply DC +12.5V to ⊕ lead of D411.
5. Supply RF AGC bias voltage to TP308.

ALIGNMENT STEPS

1. Adjust the AGC bias voltage for maximum amplitude of waveform (9Vp-p) output.
2. Adjust T301 so that picture carrier (45.75 MHz) is centered as in **Fig.5**.
3. Adjust VR302 to obtain the waveform as in **Fig.6**.

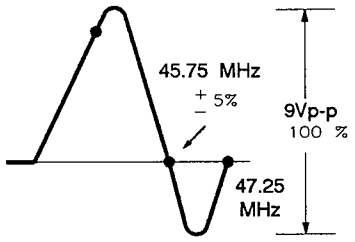


Fig.5

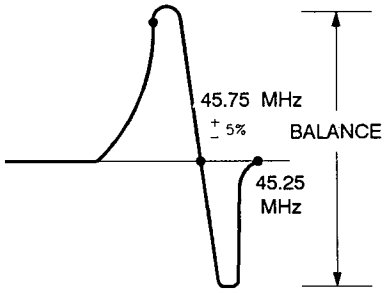


Fig.6

SIF ALIGNMENT

PREPARATION STEPS (Refer to Fig.1)

1. Connect output leads of SIF Sweep Generator (PR2) to TP306 and GND.
2. Connect lead of FROM DET (PR1) between TP303 and GND.
3. Supply DC +14V to ⊕ lead of D411.
4. Supply RF AGC bias voltage to TP308.

ALIGNMENT STEPS

1. Adjust output of Sweep Generator to achieve 3Vp-p between markers of 100 KHz.
2. Adjust T303 so that sound carrier is centered as in **Fig.7**.
3. Confirm the waveform as in **Fig.7**.
   NOTE : Input Level : -30 to 0 dB

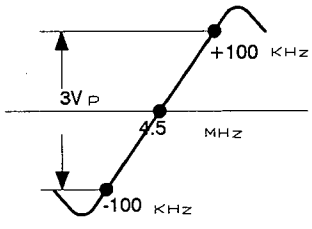


Fig.7

NOTE : Solder the solder link (A) on the solder side of main board before performing alignment steps. **(See bottom view of main PCB).**

VERTICAL V-HEIGHT ADJUSTMENT

1. Receive the Monoscope Pattern.
2. Adjust VR303 so that the picture fills the screen from top to bottom and is proportionate to the width.

WHITE BALANCE ADJUSTMENT

1. Set the SCREEN control and SUB-BRIGHTNESS (VR301) control to middle position.
2. Turn the red LOW LIGHT (VR505) control to middle position.
3. Turn the blue and green LOW-LIGHT (VR504, VR502) controls to minimum position, and turn the DRIVE (VR503, VR501) controls to middle position.
4. Receive the black and white picture signal.
5. Turn the SCREEN control to minimum position.
6. Set the SERVICE switch (S501) to 'SERVICE' position.
7. Slowly turn the SCREEN control clockwise to the point where a red color just illuminates.
8. A red horizontal line will appear on the CRT.
9. Turn (VR504) clockwise to get a yellow horizontal line on the CRT.
10. Turn (VR502) clockwise to get a white horizontal line on the CRT.
11. Reset the SERVICE switch (S501) to 'NORMAL' position.
12. Turn BRIGHTNESS control to middle position.
13. Adjust blue and green DRIVE (VR501, VR503) controls to obtain a uniform white picture.

FOCUS ADJUSTMENT

1. Set CONTRAST control to maximum position and BRIGHTNESS control to middle position.
2. Adjust FOCUS control (on the FBT) to obtain the sharpest and clearest picture on the CRT.

RF AGC

1. Receive the signal of channel 13 (VHF HIGH).
2. Set the input field strength to 62 ± 3 dBuV.
3. Adjust RF AGC (VR304) control to the point where noise is the least.

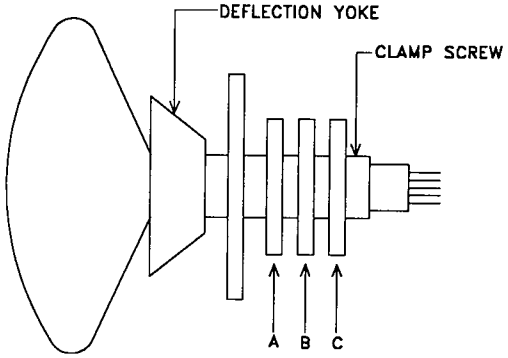
SUB-BRIGHTNESS ALIGNMENT

1. Connect the negative lead of DC Ampere Meter (3mA full scale range) to TP402, positive lead to TP403.
2. Receive Monoscope Pattern.
3. Set controls as follows :
   BRIGHTNESS control ..... MIN. position
   CONTRAST control ..... MIN. position
   COLOR control ..... MIN. position
   SHARPNESS control ..... MID. position
4. Adjust SUB-BRIGHTNESS (VR301) control to get a reading of 70 uA +5, -5.

COLOR PURITY ADJUSTMENT

BEFORE ANY ADJUSTMENTS DESCRIBED BELOW ARE ATTEMPTED, V-HOLD, H-HOLD, V-HEIGHT AND FOCUSING ADJUSTMENTS MUST BE COMPLETED.

1. Place the TV receiver facing NORTH or SOUTH.
2. Plug in TV receiver and turn it on.
3. Operate the TV receiver for over 30 minutes.
4. Fully degauss the TV receiver by using the external degaussing coil.
5. Receive a crosshatch pattern and adjust the static convergence control roughly.
6. Loosen the clamp screw of the deflection yoke and pull the deflection yoke toward you.
7. Fully turn the red, blue and green Low Light (VR505, VR502, VR504) controls counterclockwise.
8. Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
9. Adjust the purity magnets so that a green field is obtained at the center of the screen.
10. After adjustments are completed, fix the purity rings and magnet rings with paint.



A	B	C
PURITY MAGNETS	4 POLE MAGNETS	6 POLE MAGNETS

Fig.8 Picture Tube Neck Component Location

STATIC CONVERGENCE ADJUSTMENT

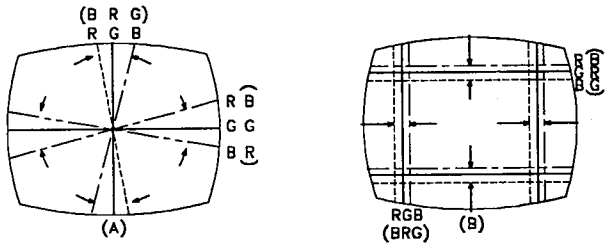
1. Turn the Receiver ON and allow it to warm up for 15 minutes.
2. Connect the output of the Crosshatch Generator to the receiver and concentrating on the center of the CRT screen, proceed as follows :
   a. Locate the pair of 4 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue lines. Rotate to converge the horizontal red and blue lines.
   b. After completing red and blue center convergence, locate the pair of 6 pole magnet rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue (magenta) and green lines. Rotate the rings (maintaining spacing between tabs) to converge the horizontal red and blue (magenta) and green lines.

DYNAMIC CONVERGENCE ADJUSTMENT

Dynamic convergence (convergence of the three color fields at the edges of the CRT screen) is accomplished by proper insertion and positioning of the three rubber wedges between the edge of the deflection yoke and the funnel of the CRT. This is accomplished in the following manner.

1. Turn the Receiver ON and allow it to warm up for 15 minutes.
2. Apply Crosshatch pattern from Dot/Bar Generator to the receiver. Observe spacing between lines around edges of CRT screen.
3. Tilt the deflection yoke up or down, and insert tilt adjustment wedges (1) and (2) between the deflection yoke and the CRT until the improper convergence illustrated in **Fig.9 (A)** has been corrected.
4. Tilt the deflection yoke right and left, and insert tilt adjustment wedge (3) between the deflection yoke and the CRT until the improper convergence illustrated in **Fig.9 (B)** has been corrected.

5. Alternately change spacing between, and depth of insertion of the three wedges until proper dynamic convergence is obtained.
6. Use a strong adhesive tape to firmly secure each of the three wedges to the funnel of the CRT.
7. Check purity and readjust, if necessary.



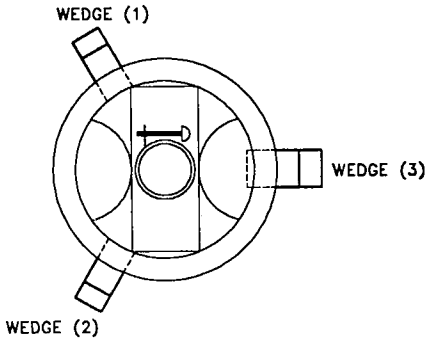
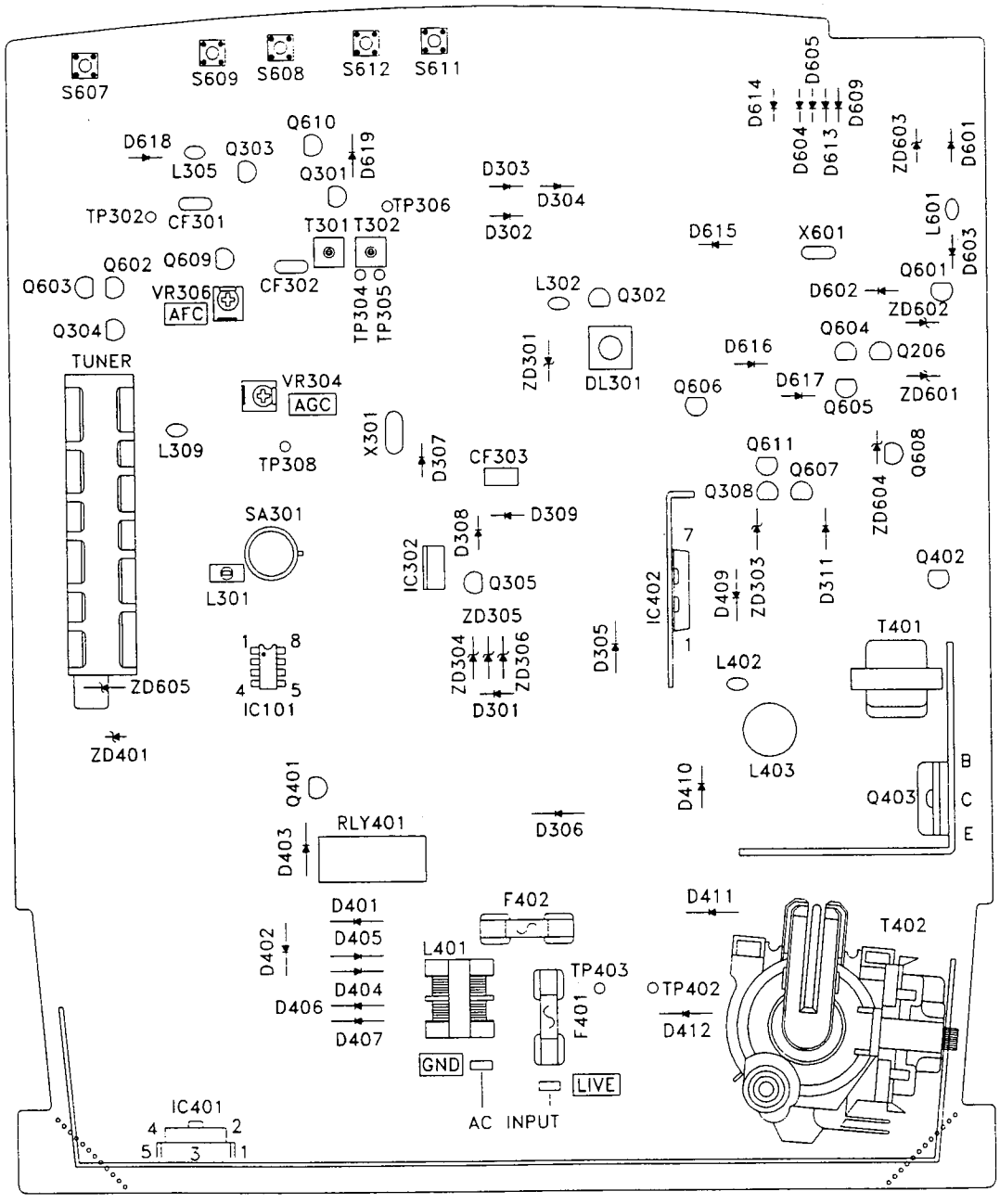


Fig.9. Dynamic Convergence Adjustment

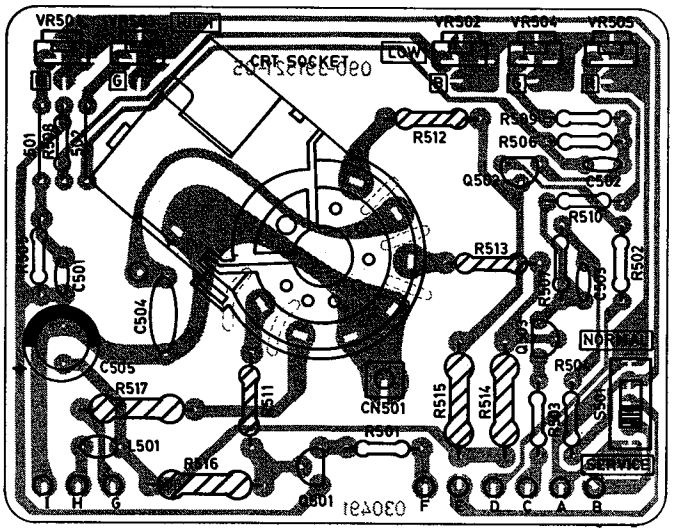
MAJOR COMPONENTS LOCATION GUIDE



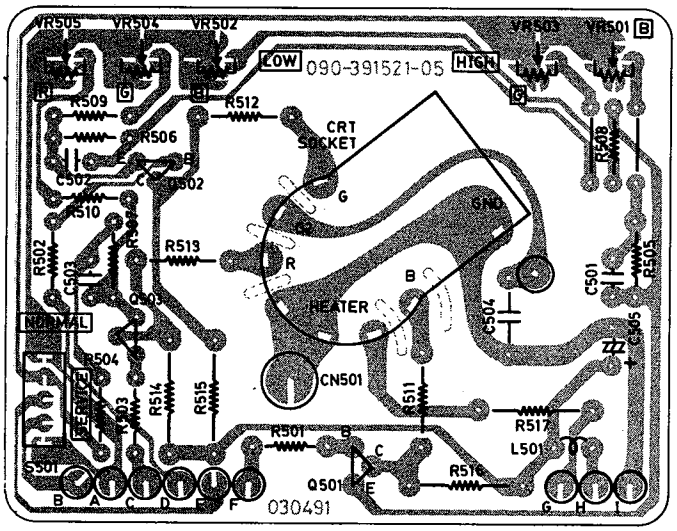
PRINTED CIRCUIT BOARDS

CRT BOARD

(TOP VIEW)

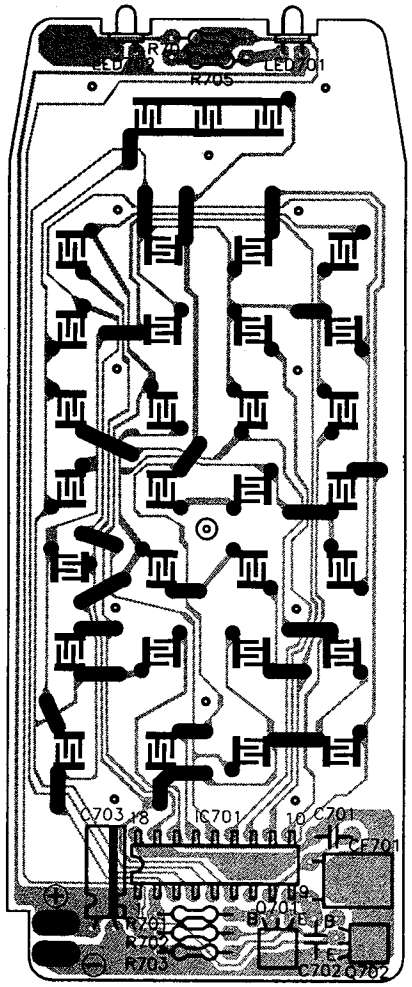


(BOTTOM VIEW)

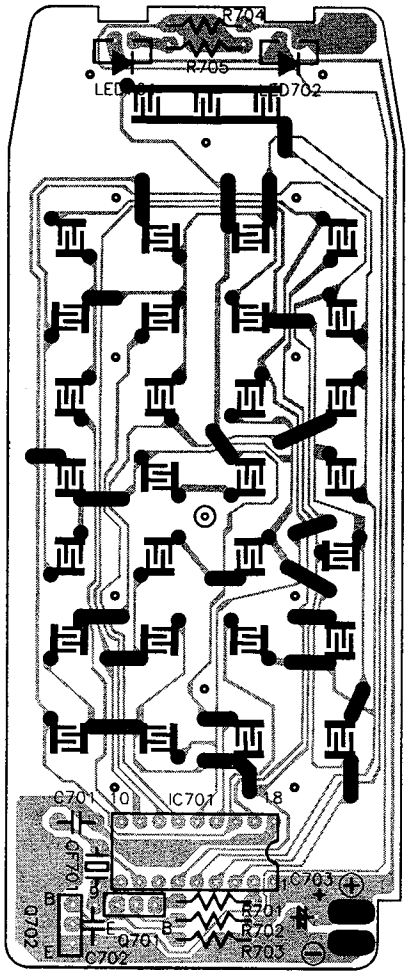


HANDSET BOARD

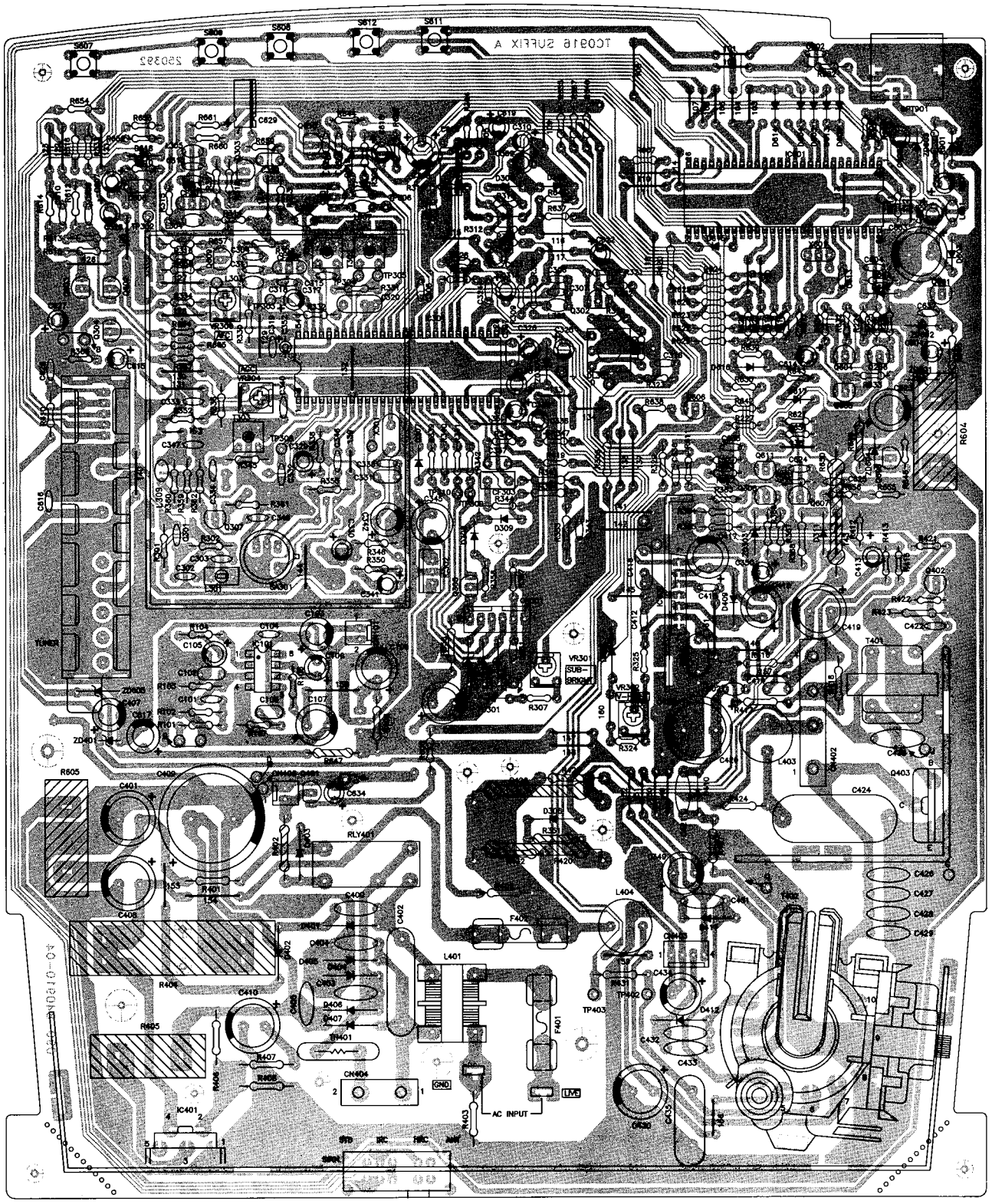
(TOP VIEW)



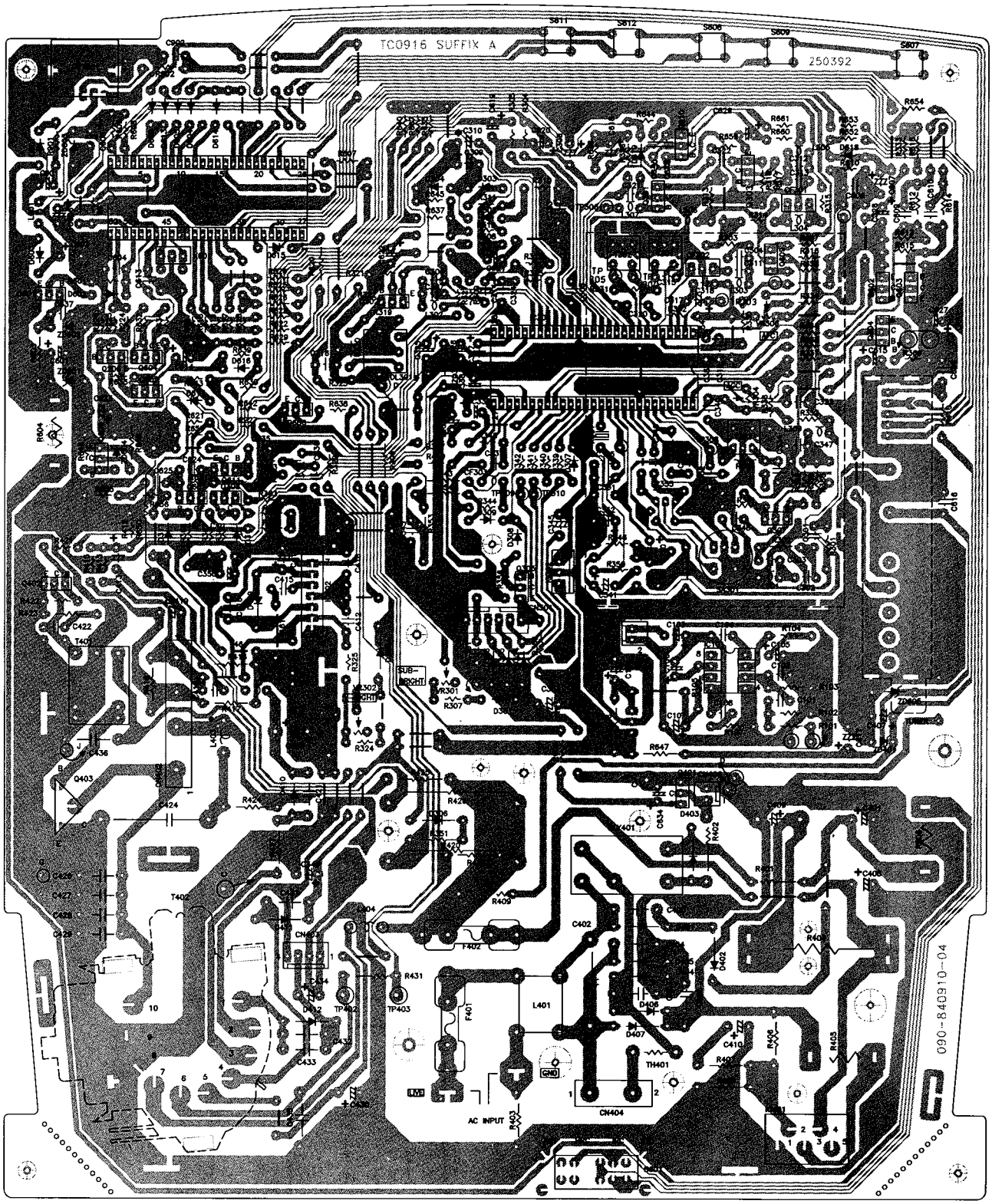
(BOTTOM VIEW)



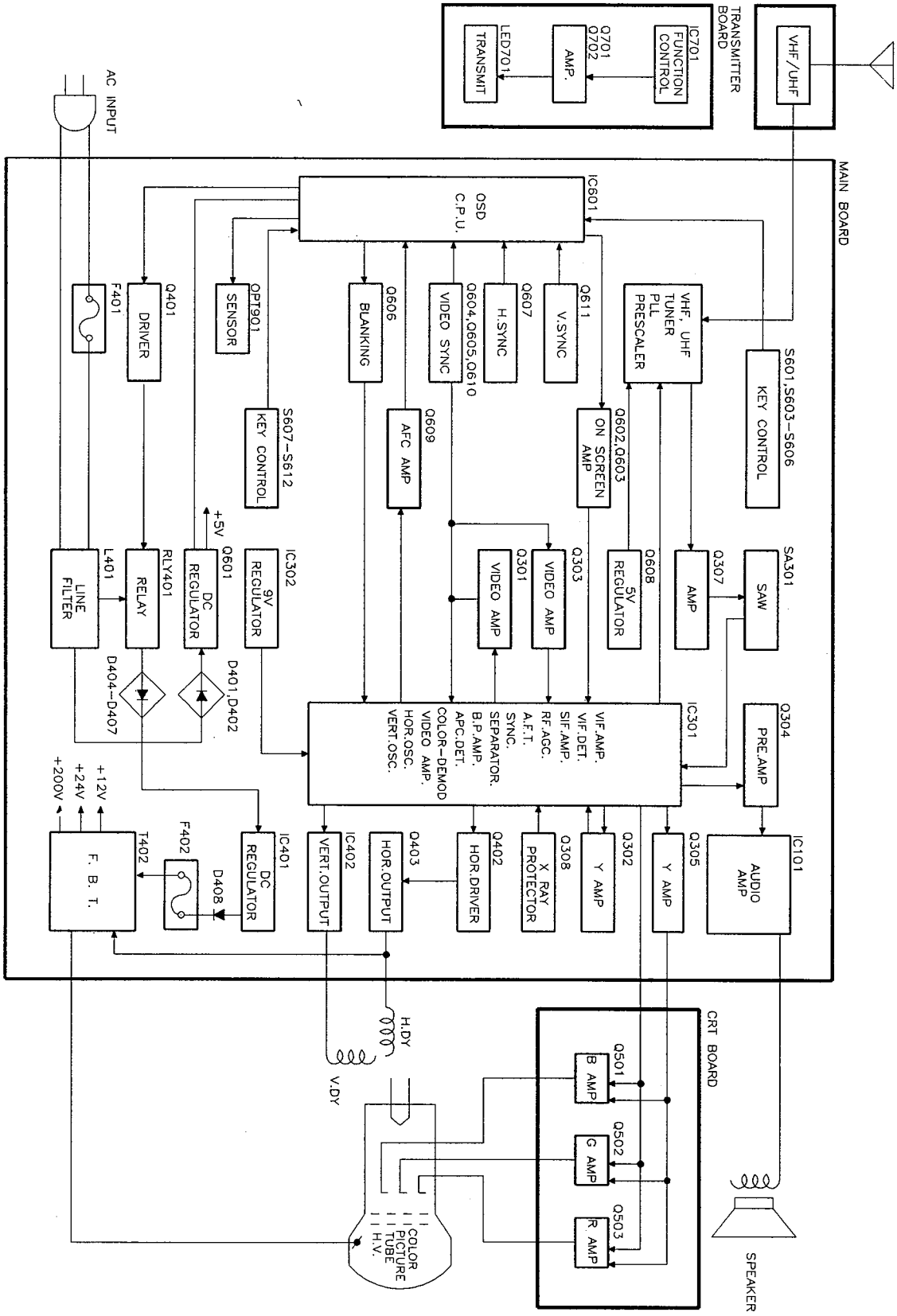
MAIN BOARD (TOP VIEW)



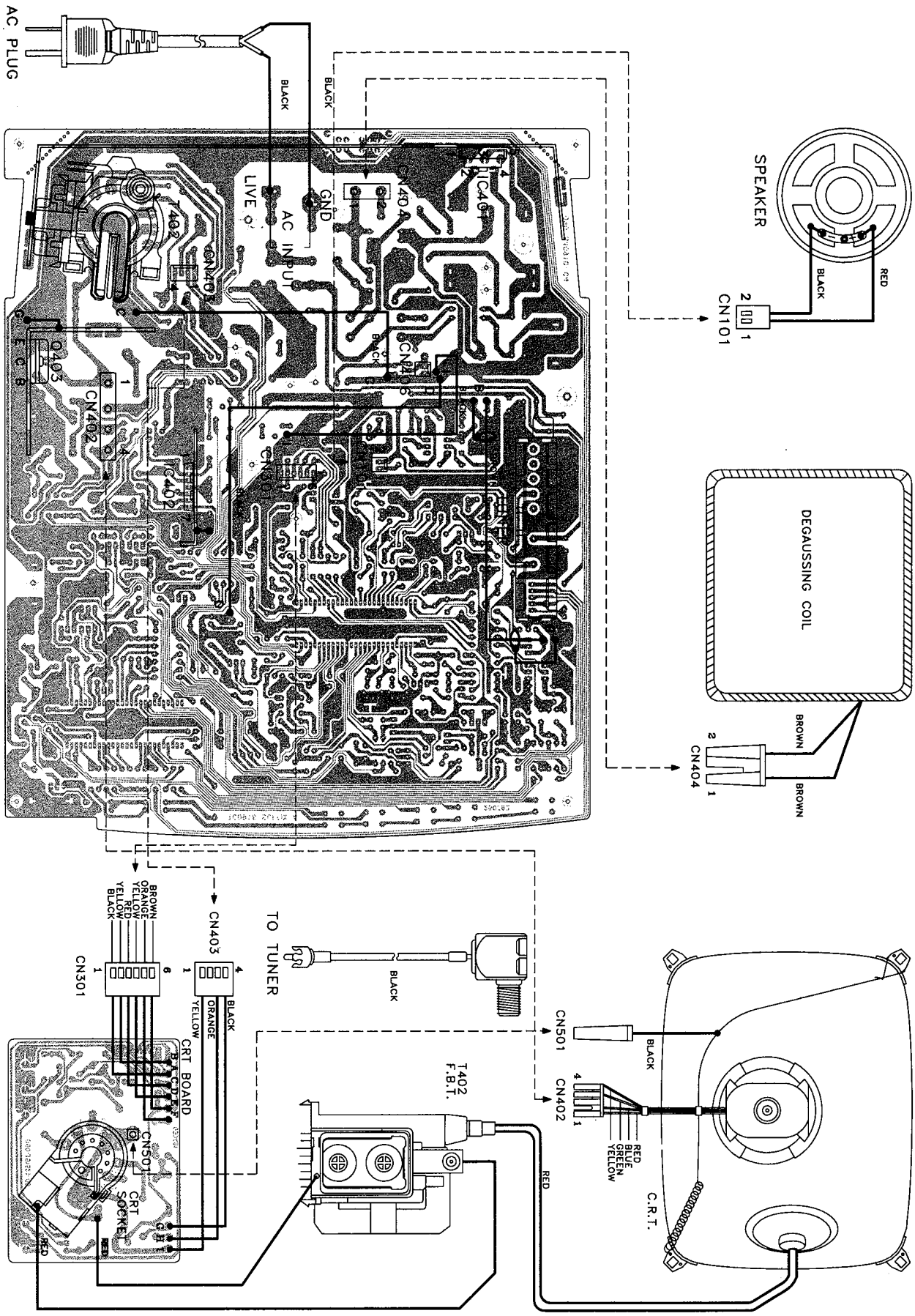
MAIN BOARD (BOTTOM VIEW)



BLOCK DIAGRAM



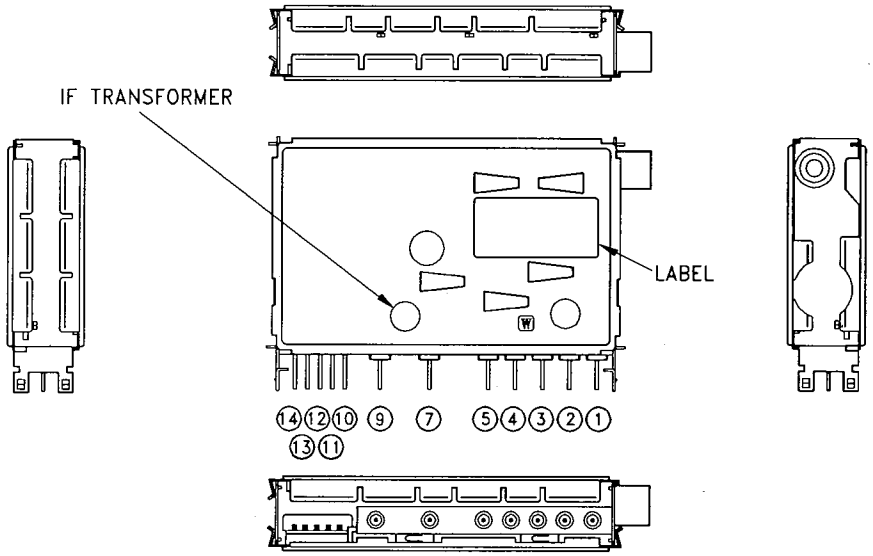
WIRING DIAGRAM



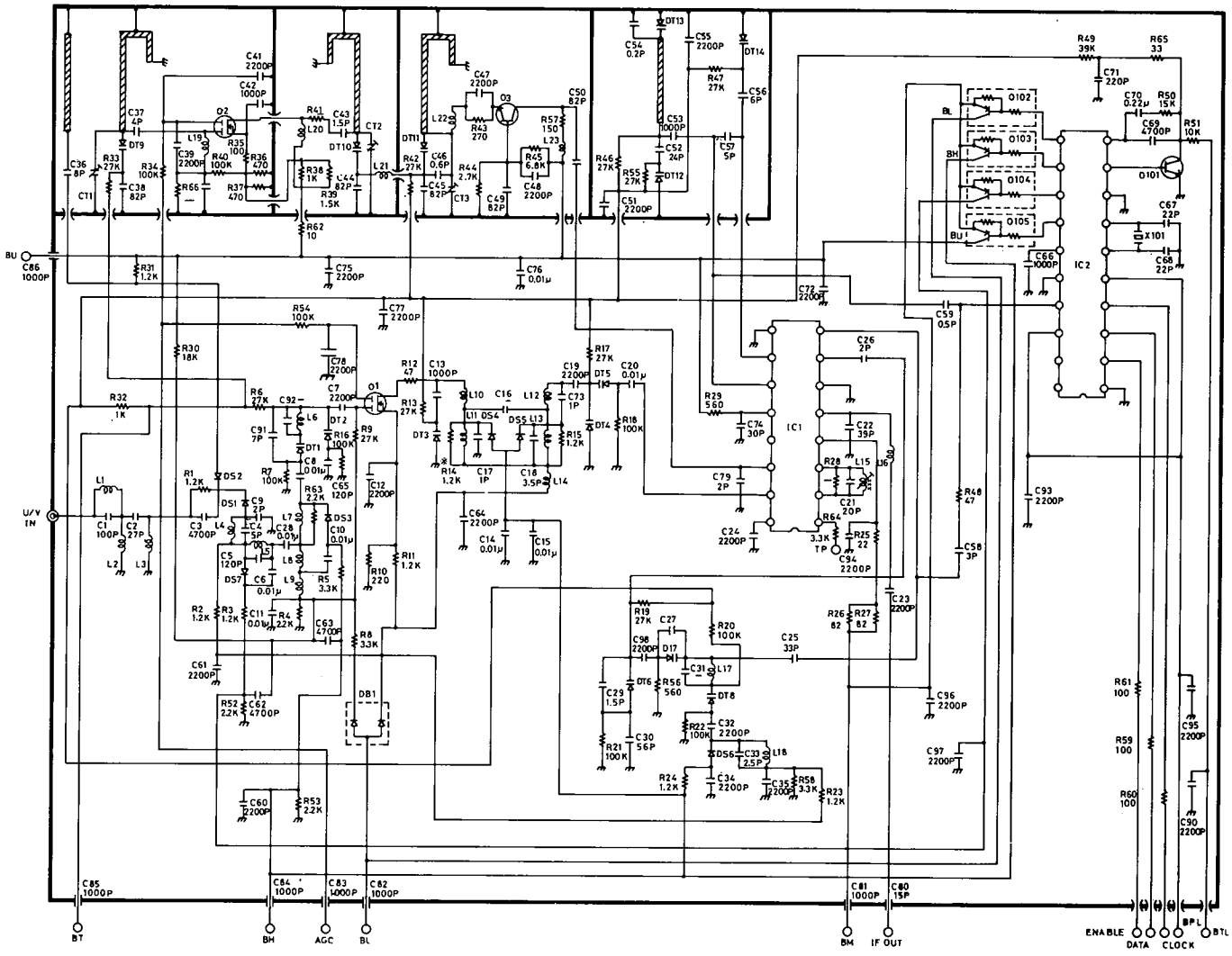
TERMINAL SUPPLY VOLTAGE TABLE

TERMINAL NO.	1	2	3	4	5	7	9	10	11	12	13	14
TERMINAL NAME	BU	BT	BH	AGC	BL	BM	IF	ENABLE	DATE	CLOCK	BPL	BTL
SUPPLY VOLTAGE	OPEN	OPEN	OPEN	+7.5 G.MAX	OPEN	+12.0	OPEN	OPEN	OPEN	OPEN	+5.0	+30.0

PICTORIAL VIEW OF TUNER



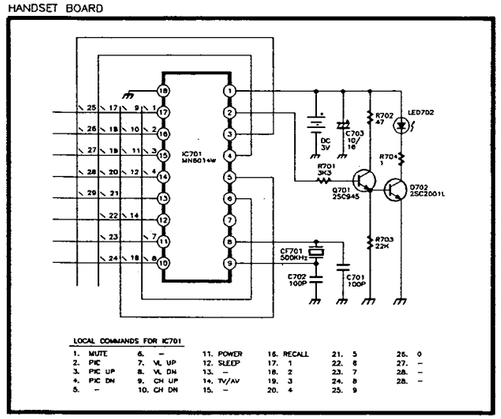
SCHEMATIC DIAGRAMS



NOTE: Tuner parts are not available.
When repairs are required, order a complete replacement tuner.

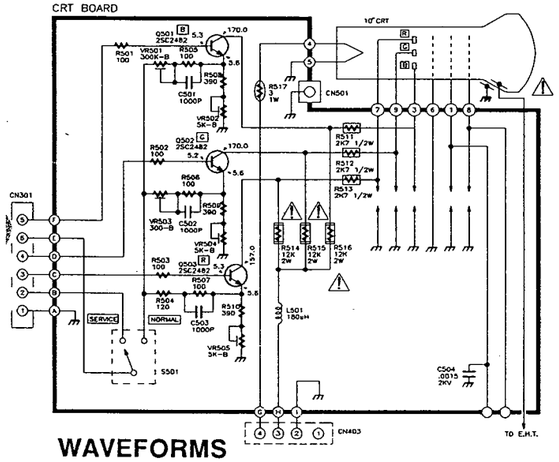
SCHEMATIC DIAGRAM

HANDSET BOARD



LOCAL COMMANDS FOR IC701							
1. MUTE	6. –	11. POWER	16. RECALL	21. 5	26. 0		
2. PIC	7. VL UP	12. SLEEP	17. 1	22. 6	27. –		
3. PIC UP	8. VL DN	13. –	18. 2	23. 7	28. –		
4. PIC DN	9. CH UP	14. TV/AV	19. 3	24. 8			
5. –	10. CH DN	15. –	20. 4	25. 9			

CRT BOARD



WAVEFORMS

1	2V P–P	2	1.6V P–P	3	2.2V P–P
4	0.85V P–P	5	50V P–P	6	1.3V P–P
7	0.8V P–P	8	160V P–P	9	950V P–P
10	1.6V P–P	11	0.7V P–P	12	1.3V P–P

MAIN BOARD

NOTE:

(1) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
ALL CAPACITORS ARE 50V UNLESS OTHERWISE NOTED.
(2) CAPACITORS NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS.
(3) ALL RESISTORS ARE IN OHM 1/16 WATT UNLESS OTHERWISE NOTED.
(4) RESISTORS NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS.
(5) DC VOLTAGES ARE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER.
(6) WAVEFORMS ARE TAKEN WITH CONTROLS SET FOR NORMAL CONDITIONS (COLOR PHILIPS PATTERN).
(7) THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.
(8) ⚠ SAFETY CRITICAL DEVICE.

VHF/UHF CONNECTOR

TUNER

IC301 TA8680BN

IC401 STR30123

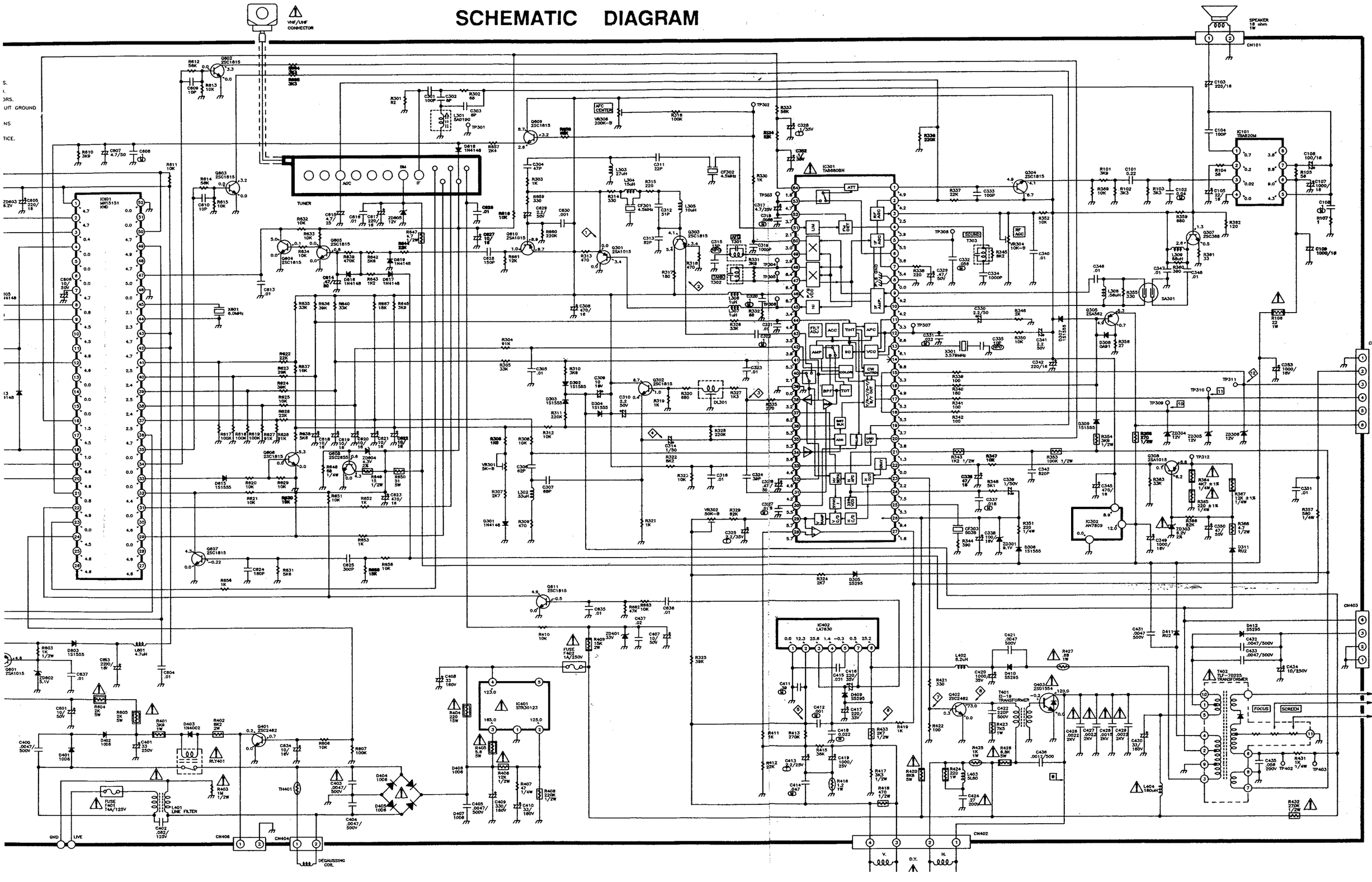
IC402 LA7830

IC1601 MN15151 KND

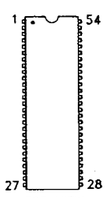
SENSOR BOARD

CIRCUIT SYMBOLS		
RESISTOR	CAPACITOR	
NONFLAMMABLE	ELECTROLYIC	POLYPROPYLENE
FUSIBLE	BI–POLAR ELECTROLYIC	MYLAR
CEMENT	TANTALUM	
METAL OXIDE	METALLIZED POLYESTER	
THERMISTOR	POLYESTER FILM	

SCHEMATIC DIAGRAM

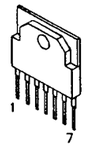


SEMICONDUCTOR DEVICES

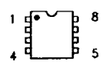


TOP VIEW

TA8680BN

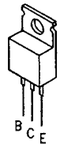


LA7830

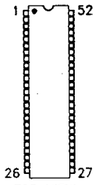


TOP VIEW

TBA820M

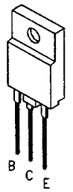


AN7809

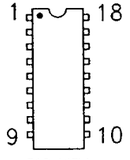


TOP VIEW

MN15151 (KWDC)

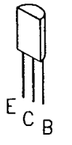


2SD1554

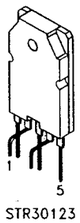


TOP VIEW

MN6014W



2SC2482
2SC2655Y



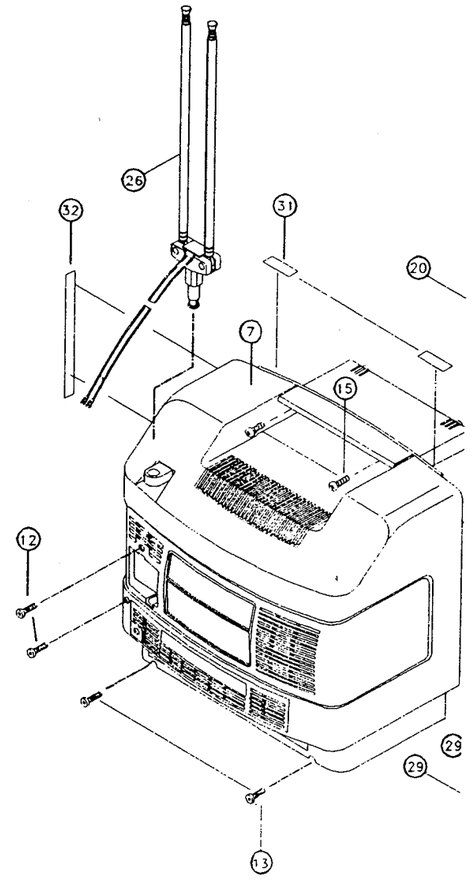
STR30123

2SA562
2SA1015
2SC388A
2SC1815Y
2SC945
2SC2001

EXPLODED VIEW/PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	QTY
1.	263-840901-01	SUN SCREEN	1
2.	330-840901-01	SUNSCREEN RUBBER FOOT	4
3.	263-840902-01	CABINET FRONT LINE	1
4.	200-840901-01A	CABINET FRONT	1
5.	277-840901-01	CHANNEL/VOLUME/POWER KNOB	1
6.	280-840901-01	ANTENNA JACK PLATE	1
7.	202-840901-01A	CABINET BACK	1
8.	426-840901-01	MTG BRACKET PLATE	1
9.	530-140033-16	FIBER WASHER	1
10.	612-300310-10	SELF-TAPPING SCREW W/T 3 x 10 mm	4
11.	614-500425-10	SELF-TAPPING SCREW B/T 5 x 25 mm	4
12.	610-300420-10	SELF-TAPPING SCREW R/T 3 x 20 mm	2
13.	610-400116-10	SELF-TAPPING SCREW R/T 4 x 16 mm	2
14.	600-305008-10	MACHINE SCREW P/H 3 x 8 mm	2
15.	614-500416-10	SELF-TAPPING SCREW B/T 5 x 16 mm	2
16.	610-400210-10	SELF-TAPPING SCREW R/T 4 x 10 mm	1

REF. NO.	PART NO.	DESCRIPTION	QTY
17.	620-305025-55	STEEL NUT M3	2
18.	633-055032-07	SPRING WASHER	2
19.	600-305010-10	MACHINE SCREW P/H 3 x 10 mm	2
20.	072-830000-48	BRAID WIRE	1
21.	477-371601-01	CRT SPRING	1
22.	334-371601-01	RUBBER RING	4
23.	066-161030-00A	SPEAKER PR-A0811 3"	1
24.	771-840901-01	MAIN P.C. BOARD ASS'Y	1
25.	771-840902-01	CRT P.C. BOARD ASS'Y	1
26.	779-691001-01	ROD ANTENNA ASS'Y	1
27.	102-310001-26	9" CRT	1
28.	108-270101-05	DEGAUSS COIL	1
29.	062-120031-01	ANTENNA SOCKET	1
30.	229-371501-01	CRT MTG CLIP	4
31.	521-034094-01	FELT PAPER 34 mm x 9 mm x 0.4 mm	2
32.	521-190094-01	FELT PAPER 190 mm x 9 mm x 0.4 mm	2
33.	790-390241-02	HANDSET ASS'Y	1

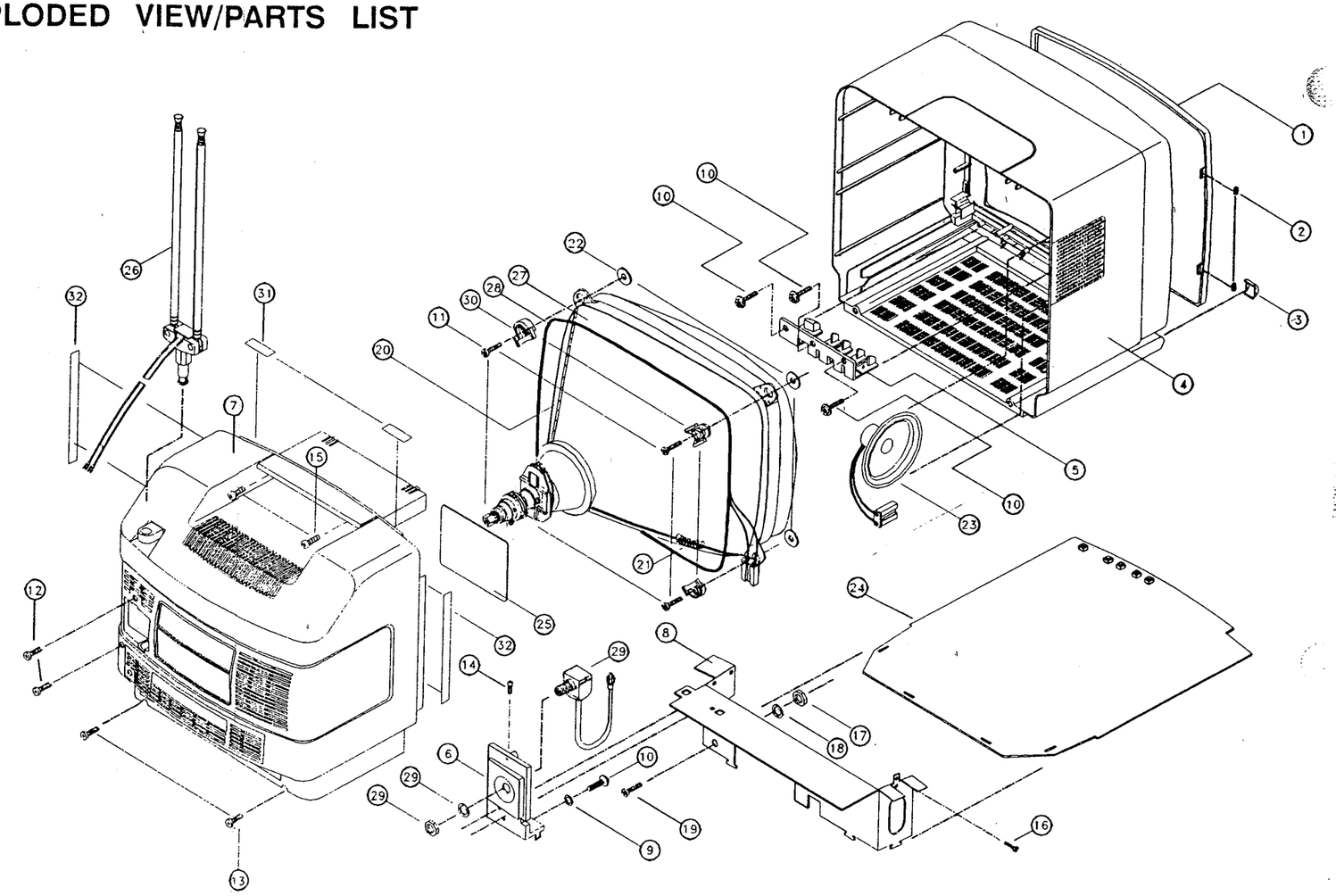


REF. NO.	DESCRIPTION
1.	TOP CABINET
2.	CONDUCTIVE RUBBER
3.	HANDSET P.C BOARD ASS'Y
4.	BATTERY CONTACT PLATE
5.	BATTERY CONTACT PLATE
6.	BATTERY CONTACT PLATE
7.	FRONT LENS
8.	BOTTOM CABINET
9.	SELF-TAPPING SCREW R/T
10.	BATTERY COVER
11.	NAME PLATE

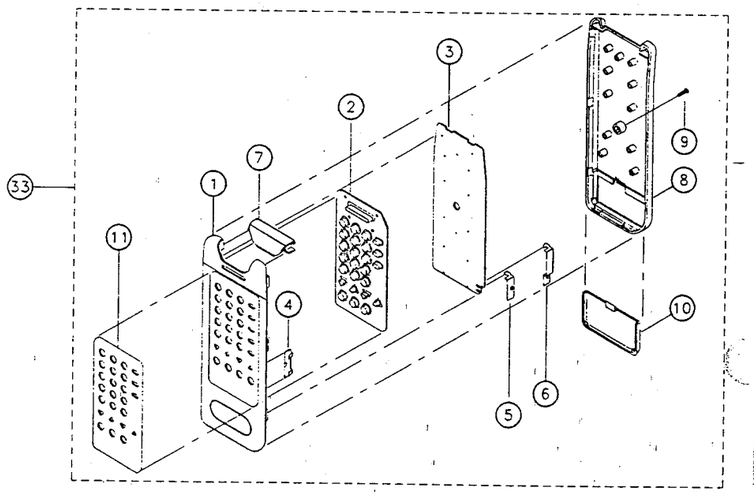
EXPLODED VIEW/PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	QTY
1.	263-840901-01	SUN SCREEN	1
2.	330-840901-01	SUNSCREEN RUBBER FOOT	4
3.	263-840902-01	CABINET FRONT LINE	1
4.	200-840901-01A	CABINET FRONT	1
5.	277-840901-01	CHANNEL/VOLUME/POWER KNOB	1
6.	280-840901-01	ANTENNA JACK PLATE	1
7.	202-840901-01A	CABINET BACK	1
8.	426-840901-01	MTG BRACKET PLATE	1
9.	530-140033-16	FIBER WASHER	1
10.	612-300310-10	SELF-TAPPING SCREW W/T 3 x 10 mm	4
11.	614-500425-10	SELF-TAPPING SCREW B/T 5 x 25 mm	4
12.	610-300420-10	SELF-TAPPING SCREW R/T 3 x 20 mm	2
13.	610-400116-10	SELF-TAPPING SCREW R/T 4 x 16 mm	2
14.	600-305008-10	MACHINE SCREW P/H 3 x 8 mm	2
15.	614-500416-10	SELF-TAPPING SCREW B/T 5 x 16 mm	2
16.	610-400210-10	SELF-TAPPING SCREW R/T 4 x 10 mm	1

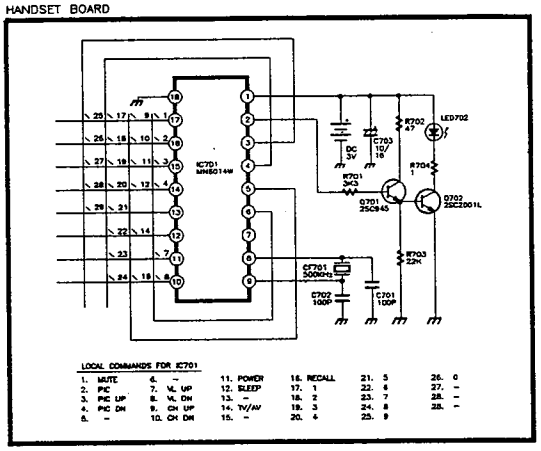
REF. NO.	PART NO.	DESCRIPTION	QTY
17.	620-305025-55	STEEL NUT M3	2
18.	633-055032-07	SPRING WASHER	2
19.	600-305010-10	MACHINE SCREW P/H 3 x 10 mm	2
20.	072-830000-48	BRAID WIRE	1
21.	477-371601-01	CRT SPRING	1
22.	334-371601-01	RUBBER RING	4
23.	066-161030-00A	SPEAKER PR-A0811 3"	1
24.	771-840901-01	MAIN P.C. BOARD ASS'Y	1
25.	771-840902-01	CRT P.C. BOARD ASS'Y	1
26.	779-691001-01	ROD ANTENNA ASS'Y	1
27.	102-310001-26	9" CRT	1
28.	108-270101-05	DEGAUSS COIL	1
29.	062-120031-01	ANTENNA SOCKET	1
30.	229-371501-01	CRT MTG CLIP	4
31.	521-034094-01	FELT PAPER 34 mm x 9 mm x 0.4 mm	2
32.	521-190094-01	FELT PAPER 190 mm x 9 mm x 0.4 mm	2
33.	790-390241-02	HANDSET ASS'Y	1



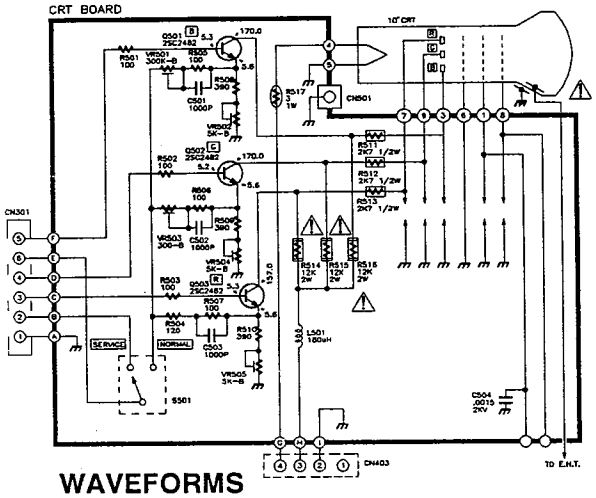
REF. NO.	DESCRIPTION	QTY
1.	TOP CABINET	1
2.	CONDUCTIVE RUBBER	1
3.	HANDSET P.C BOARD ASS'Y	1
4.	BATTERY CONTACT PLATE +,- VE	1
5.	BATTERY CONTACT PLATE - VE	1
6.	BATTERY CONTACT PLATE + VE	1
7.	FRONT LENS	1
8.	BOTTOM CABINET	1
9.	SELF-TAPPING SCREW R/T 2.6 x 8 mm	1
10.	BATTERY COVER	1
11.	NAME PLATE	1



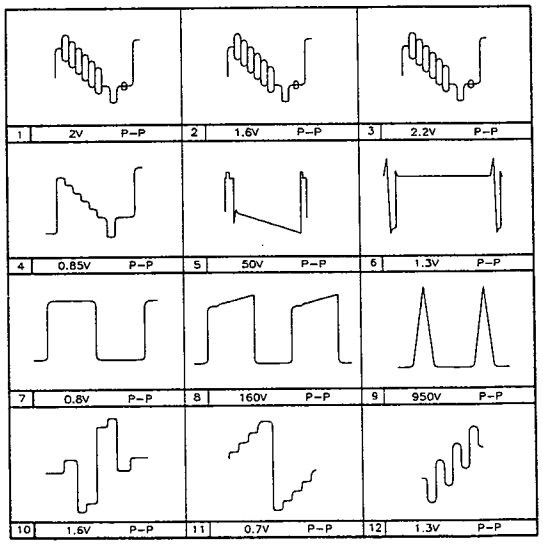
HANDSET BOARD



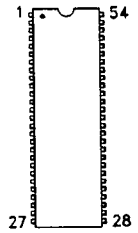
CRT BOARD



WAVEFORMS

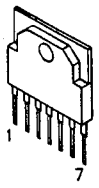


SEMICONDUCTOR DEVICES

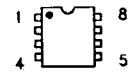


TOP VIEW

TA8680BN

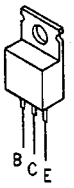


LA7830

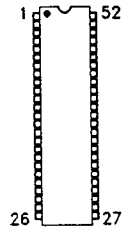


TOP VIEW

TBA820M

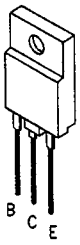


AN7809



TOP VIEW

MN15151 (KWDC)



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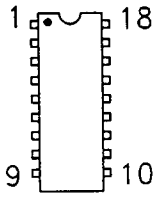
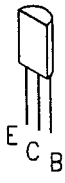


TOP VIEW

MN6014W



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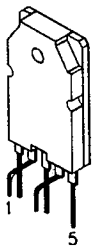
2SC2655Y



STR30123

2SA562
2SA1015
2SC388A
2SC1815Y
2SC945
2SC2001

SCHEMATIC DIAGRAM

MAIN BOARD

NOTE:
(1) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
ALL CAPACITORS ARE 50V UNLESS OTHERWISE NOTED.
(2) CAPACITORS NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS.
(3) ALL RESISTORS ARE IN OHM 1/16 WATT UNLESS OTHERWISE NOTED.
(4) RESISTORS NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS.
(5) DC VOLTAGES ARE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER.
(6) WAVEFORMS ARE TAKEN WITH CONTROLS SET FOR NORMAL CONDITIONS (COLOR PHILIPS PATTERN).
(7) THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.
(8) ⚠ SAFETY CRITICAL DEVICE.

SENSOR BOARD

CIRCUIT SYMBOLS

RESISTOR	CAPACITOR	
NONFLAMMABLE	ELECTROLYTIC	POLYPROPYLENE
FUSIBLE	BI-POLAR ELECTROLYTIC	MYLAR
CEMENT	TANTALUM	
METAL OXIDE	METALLIZED POLYESTER	
THERMISTOR	POLYESTER FILM	